

REMARKS

The Office Action mailed March 2, 2004, has been carefully considered. Reconsideration in view of the following remarks is respectfully requested.

Drawings

The drawing figures have been corrected in accordance with the Examiner's suggestions. Specifically, FIGS. 1 – 3 have been amended to include the caption "Prior Art." No new matter has been introduced. Approval of the corrections is respectfully requested.

Abstract of the Invention

The Abstract has been amended to better comply with U.S. patent practice.

Rejection(s) Under 35 U.S.C. § 103 Rejection

Claims 1 – 5 and 7 – 9 were rejected under 35 U.S.C. § 103(a) as unpatentable over Pantigny (U.S. pat. no. 5,742,058). Applicants respectfully traverse.

Pantigny discloses an impedance matching device AI connected between a detector DET (I, j) and a column bus BCj.

In the presently claimed arrangement, by comparison, the impedance matching device (D) is connected between the bus Bpel and an integrator (I) (charge amplifier).

In both cases this impedance matching device is an intermediary on the level of the capacitance of the upstream and downstream blocks.

In pantigny, of course, the impedance matching device serves mainly to transfer the charges created by the detector to the column bus, but the impedance matching device serves especially to insulate the detector located upstream from the impedance matching device from potential fluctuations which appear downstream. These potential fluctuations appear necessarily during operation and can be significant in magnitude and impact.

The impedance matching device prevents the detector from being depolarized. The impedance matching device works with very low input voltage (some Mvots) and very high output voltage (some Volts).

In the present application, the impedance matching device serves to transfer charges between the bus and charge amplifier with a temporal constraint.

But the presently claimed impedance matching device, connected between the bus and the charge amplifier is used to solve another problem, not addressed in Pantigny:

- a noise problem at the output of the charge amplifier.

The impedance matching device should have a low output capacitance in such a way that the noise at the output of the charge amplifier is independent from the high capacitance of the bus.

In the prior art, the noise at the output of the charge amplifier was proportional to:

$(c_{\text{bus}} + c_{\text{conv}}) / c_{\text{conv}}$ (see page 4, line 13 to page 5, line 5 of the specification).

In the present application, the noise at the output of the charge amplifier is proportional to:

cmoinst+c conv/c conv (see page 17, line 1 of the specification). c moins is the order of the femtofarad and c bus is of the order of the picofarad. A gain from 100 to 1000 is obtained on the noise of the present application.

Contrary to Pantigny, the impedance matching device of the present application operates with input voltage and output voltage very close.

The functions and arrangements of the impedance matching device of Pantigny and of the present application are different, and there is no motivation or suggestion to alter the teachings Pantigny, which does not identify or address the problem to which the presently claimed arrangement, in order to arrive at the presently claimed invention.

According to the Manual of Patent Examining Procedure (M.P.E.P.),

To establish a *prima facie* case of obviousness, three basic criteria must be met. First there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's disclosure.¹

Conclusion

In view of the preceding discussion, Applicants respectfully urge that the claims of the present application define patentable subject matter and should be passed to allowance. Such allowance is respectfully solicited.


¹ M.P.E.P § 2143.

If the Examiner believes that a telephone call would help advance prosecution of the present invention, the Examiner is kindly invited to call the undersigned attorney at the number below.

Please charge any additional required fee, including those necessary to obtain extensions of time to render timely the filing of the instant Reply, or credit any overpayment not otherwise paid or credited, to our deposit account No. 50-1698.

Respectfully submitted,
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